St. Louis Park
MINNESOTA

Experience LIFE in the Park

July 19, 2012

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Director, Remediation
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Minnesota Pollution Control Agency
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Attn: Nile Fellows

Subject: United States of America, et al. vs. Reilly Tar & Chemical Corporation, et al.
File No. Civ. 4-80-469 CD-RAP Section 3.4

Dear Project Leaders,

The City of St. Louis Park (City) has received the letter dated May 30, 2012 from the U.S. Environmental Protection Agency and the Minnesota Pollution Control Agency (the Agencies) regarding the 2011 Annual Monitoring Report. The City has prepared the following responses to the Agencies' comments and questions using the same number system provided in the Agencies' letter.

The City's number one goal has always been, and will continue to be, the protection of public health. Our collective challenge is use the best available scientific information to take appropriate and timely actions to accomplish this goal, and to not use limited taxpayer resources for unnecessary levels of protection. The City will always be a responsible steward of the soil and groundwater at the Reilly Site and in adjacent areas where PAH concentrations exceed public health standards. In this manner, ongoing changes in the physical landscape will be met by using the best available science to protect public health and welfare, and the environment.

The City understands that the CD-RAP was the best available legal recourse to the Reilly Site litigation at the time and that the remedial elements of the CD-RAP were negotiated and represented a compromise. Thus the CD-RAP was not necessarily a perfect solution for all

parties. In the years since 1986 there have been many changes to the physical landscape in St. Louis Park and advancements in the sciences of public health and environmental remediation. Physical land use changes, such as property redevelopment and the abandonment of private industrial wells, have required the City to deviate from the letter of the CD-RAP to accommodate these changes. However, this project has not made changes to accommodate or make the best use of advancements in science. The Agencies have stated on several occasions, including in their 2012 Sampling Plan comments dated December 12, 2011, that the best available scientific information should be used to make decisions on the Reilly project. The City agrees with the Agencies on that point especially as related to the use of updated drinking water standards that indicate much higher PAH concentrations are protective of public health and the recognition of natural attenuation as the key limiting factor for contaminant migration, as an alternative to a reliance on pump and treat technologies.

The CD-RAP is nearing its 30-year anniversary, four short years from now on September 4, 2016. The City looks forward to that date as the earliest opportunity to complete various elements of the Reilly Site remedy in accordance with the requirements of the CD-RAP. The City expects that groundwater pumping in the non-drinking water aquifers will be discontinued at the earliest possible time allowed pursuant to the CD-RAP. The City's vision for the Annual Monitoring Report subsequent to the 30th anniversary of the CD-RAP is a report on the City's drinking water supply, including continued operation of the existing GAC treatment plants and on-going monitoring of the Prairie du Chien – Jordan Aquifer.

General Comments

The City takes great exception to the implication at the top of page 2 of the Agencies' letter that drinking water quality is not adequately being monitored within St. Louis Park. All of the wells (100% with no deviation from plan) that are operated to supply drinking water were tested in 2011 according to plan. The fact that some wells were unused, out of service, or were otherwise unavailable for sampling (as they have for every year of sampling since monitoring began under the CD-RAP) does not compromise the testing that demonstrated that the public was supplied with water that meets the CD-RAP drinking water criteria and that PAH did not migrate to new areas of the Prairie du Chien – Jordan or Mt. Simon – Hinckley Aquifers in 2011.

The City looks forward to an interactive discussion with the Agencies to assess the sufficiency of the groundwater monitoring network and the necessity of the current pumping network. It must be recognized that the expressed and/or implied goals for the pumping network did not include capturing the plume areas, either as depicted in the 2011 Annual Monitoring Report, or as they were known in 1986. Specific goals identified in the CD-RAP for the various pumping wells were summarized in the Pumping Well Summary table submitted most recently on January 25, 2012 with the final 2012 Sampling Plan.

Similarly, the City would be glad to discuss changes in report content or format that would assist the Agencies in understanding the data presented in future reports submitted pursuant to Section

3.4 of the CD-RAP. The City has routinely shared its water quality database with the Agencies to allow graphs, trends, and statistical analyses to be performed. The data trends mentioned in the report were obvious based on the historical PAH sums presented in report's tables.

Mt. Simon – Hinckley Aquifer

1. The City plans to sample SLP13 per 2012 Sampling Plan.

2. Well SLP17 has not been used for potable drinking water supply for over 20 years. SLP17 is an emergency backup-only well and the City does not anticipate the well to be activated. The City will not include SLP 17 in the 2013 Sampling Plan.

3. The statement "No new Mt. Simon-Hinckley Aquifer wells were installed within a mile of W23" has been sufficient in all previous reports. What is the reasoning behind this request for additional validation?

Ironton – Galesville Aquifer

4. The City and Agencies agreed to every other year sampling of W105 back in 1994 at which time the merits of the two sampling frequencies were discussed. Well W105 has been sampled every other year since 1994 (as depicted in sampling plans and documented in annual reports, both of which were approved by the Agencies).

The City disagrees with both reasons given by the Agencies for sampling well W105 twice per year. The aquifer is unused in the vicinity of St. Louis Park, and PAH concentrations are not expected to change at a rate that would justify sampling twice per year. There is not a strong source of PAH at the well, as demonstrated by the data, and the lack of pumping stresses means that natural groundwater flow velocities act on the PAH present at well W105.

5. The 10 ppb exceedances were a surprise to the City because the well did not generally exceed 10 ppb when it was originally installed. As such, the data were not reviewed until work began on the Section 3.4 Annual Monitoring Reports for those years. Based on this experience the City has instituted a new procedure to review the data from well W105 upon receipt. The CD-RAP requires two follow up samples within one month, thus the samples were collected during separate sampling events a week apart. The City would entertain a different sampling schedule if the Agencies would like more separation between samples.

6. The purging problems consisted of a misunderstanding between the sampling crews and the City staff who maintain and operate the pumping wells. For the two sampling events in question, well W105 was not purged in advance of sampling as required by sampling protocol, thus stagnant water within the well and drop pipe were collected rather than fresh formation water. Apparently there is enough PAH adsorbed to the well casing, pump, and drop pipe to cause PAH concentrations greater than 10 ppb in the stagnant water. In each instance, the PAH

concentrations of the representative Ironton – Galesville groundwater samples contained PAH concentrations below the cessation criteria.

7. The statement "No new Mt. Ironton-Galesville Aquifer wells were installed within a mile of W23" has been sufficient in all previous reports. What is the reasoning behind this request for additional validation?

Prairie Du Chien – Jordan Aquifer

8. The City does not agree with the Agencies interpretation of the well E13 graph, however, it is probably sufficient to say that time will tell if the water quality at well E13 improves, degrades or stays the same. The City used the entire body of data for the Prairie du Chien – Jordan Aquifer, not only the well E13 results, to support the conclusion that PAH concentrations were consistent with historical levels and were stable or decreasing in most wells. If they Agencies feel that these data do not support this conclusion, then we should meet to discuss what conclusion the Agencies draw from these data. In any event, the City does not see any reason to make changes to the actions being implemented under the CD-RAP based on the 2011 data.

9. Since 1987, project documents (including the 2012 Sampling Plan, Table 2, footnote g) identified the American Hardware Mutual well as well W405 and the Minikahda Golf Course well as well W406. In practice, the location of well W406 is better suited for the Reilly Site monitoring network and well W405 has not been visited for many years.

10. Well W403 (and well W402) were installed in accordance with CD-RAP Section 7.2.5 downgradient from well SLP4 to monitor the Prairie du Chien – Jordan Aquifer gradient control system. Since the outset of monitoring over 20 years ago, samples from these wells have shown PAH concentrations that appear to be unrelated to the Reilly Site. These wells contain carcinogenic PAH which rarely show up downgradient from the Reilly Site. Also, the pattern of the distribution of PAH at these wells is not consistent with PAH concentrations at locations closer to the Reilly Site. Well W403 has been the subject of vandalism, with dirt and other debris placed inside the well which is the likely source of the anomalous PAH concentrations.

It is important to note that well SLP4 has a steadily decreasing concentration of PAH which is readily apparent from Table 3 of the 2011 Annual Monitoring Report. Groundwater modeling done by the City in the 1990s, and more recently by the State of Minnesota and EPA, show a broad area of capture by well SLP4. Thus, the well SLP4 capture area and water quality results combine to exclude the possibility that PAH in wells W402 and W403 is derived from the Reilly Site.

Based on the protection to the aquifer afforded by well SLP4, and the anomalous groundwater quality and lack of usefulness in evaluating gradient control at wells W402 and W403, the City is of the opinion that both monitoring wells should be abandoned with no further monitoring

downgradient of well SLP4. The City specifically disagrees with the notion that these data constitute a new threat that needs to be addressed by quarterly monitoring.

11. The City will continue to sample well W119 when the well owner indicates it is available to be sampled. During the first and fourth quarters of the year the well is winterized – water lines are evacuated, and the wellhead is sealed (not available for a sampling pump to be lowered into the well). The City has respected the well owner's wishes to avoid turning the well on when it is not in use for golf course irrigation. The representative samples of groundwater obtained when the well is in use provide a consistent picture year to year of PAH concentrations that currently meet CD-RAP drinking water quality. Furthermore, well W48 is nearby and closer to the Reilly Site and that well is available on a quarterly basis. The lack of seasonal trends and the similar PAH concentrations in well W48 suggest that missing the first and fourth quarters at well W119 does not jeopardize our monitoring program. The City plans to continue sampling W119 when it is available. The City can change the 2013 Sampling Plan to reflect the wells availability for sampling if the Agencies prefer.

12. SLP 6 will return to quarterly sampling once repairs are made at that location. Over the many years of quarterly sampling at well SLP6 it has been learned that water quality does not change appreciably quarter to quarter. Instead, this well and well W48 have demonstrated that when pumping they draw increasing levels of PAH. The City interprets this to mean that both wells are on the southern edge of the Reilly Site PAH plume in the Prairie du Chien – Jordan Aquifer and as long as they meet drinking water criteria, then PAH are not migrating further south. It will be interesting to monitor any changes that may be brought about by the renewed pumping of well E7 and other wells in the City of Edina.

13. The City will make arrangements to collect samples from well W29 when the well is back in operation.

14. The City will not include Well W40 in the 2013 Sampling Plan.

15. The City municipal wells are equipped with pressure transducers to capture continuous water level measurements throughout the year. In anticipation of being able to use Edina water level data to prepare more meaningful water elevation maps, hand measurements using electric tapes were not made in 2011 (except at wells W402 and W403). No attempt was made to compile the water level data after it became clear that the Edina data would not be available for this report. The "snapshot" contour maps prepared in prior years monitoring reports are viewed as having limited usefulness and were not included in the 2011 report.

16. The same water level data comments above apply to Figure 3. The City will provide a better compilation of water level data in the next annual report, even if the Edina data are still in limbo. The inferred plume in Figure 3 matched the plume in Figure 2 and included the inference that water quality in those areas southeast of the Site and north of County Road 3 are similar to historic PAH concentrations in wells W70 and W40. There are no longer any Prairie du Chien – Jordan Aquifer monitoring wells in this area.

17. Since 2004 Edina has informed the City that well E7 is non-operational and unavailable for sampling. The City will sample E7 when provided access by Edina. Well W413 does not exist. Both wells were listed in the sampling plan to indicate they would be sampled, in case they were available for sampling. The City will not include W413 in 2013 Sample Plan.

St. Peter Aquifer

18. The evidence the City used to draw conclusions about this aquifer includes the current and historical water quality data presented in the report. Water quality data for well W129 are not much different than historical levels and the City sees no technical justification for quarterly sampling at that location. In order to be clear about what the City used as evidence and what the Agencies do not find in the report, a meeting is probably in order.

19. The lack of hydraulic connection between well W122 and the upper portion of the St. Peter Formation (approximately the upper 100 feet of the formation is considered to be the aquifer, while the lower 50 feet is considered to be a confining layer according to USGS WSP 2211 and any number of other Twin Cities area hydrogeological studies) has long been known to the Agencies – the 2012 Annual Monitoring Report was just stating the obvious based on the USGS report.

The City will plan to look at EPA's January 2008 report (EPA 600/R-08/003) to support capture zone analyses for the Reilly Site.

20. The referenced variables used by the City were obtained using site specific gradient, aquifer thickness, and transmissivity values and the pumping rate at well W410. These variables compare well to many literature values from hydrogeologic studies in the Twin Cities area. As such, the estimated capture zone should be a good generalization for well W410, but the City agrees that this type of generalized approach would not account for variability within the aquifer. The upper portion of the St. Peter sandstone is one of the most uniform aquifers in nature and is well-suited to this approach.

Platteville Aquifer

21. The City offers the same explanation for the W421 capture zone. Site specific data that are in the same range of widely variable literature values were used to estimate the capture zone.

22. At face value, well W421 did not contain DNAPL when it was drilled, and now there is a small amount in the well. The City concludes that the DNAPL migrated into the well and knows of no simpler explanation than that. This issue probably requires a meeting so the Agencies can explain any nuance to their question missed by the City.

Well W13 no longer exists. It was located west of Louisiana Avenue between Lake Street and Highway 7. When DNAPL was found in well W13 a concerted effort was made to determine how much was present in the subsurface. Several soil borings were drilled to investigate the extent of the DNAPL. None of these borings detected DNAPL and the conclusion was made at the time that the subsurface amount of DNAPL must be small. That work was done by the Agencies prior to the CD-RAP.

23. The last sentence was written considering W437 as part of the source area. The City acknowledges that there is a fairly large distance to the next downgradient well from that location. However, the PAH concentrations for both upgradient and downgradient wells have been consistent over the monitoring period for the CD-RAP. This leads the City to conclude that PAH are not migrating from the areas of high concentrations to downgradient areas. Well W437 itself appears to be rapidly losing its formerly high PAH concentrations.

24. The City contracted a licensed water well contractor to remove the debris from well W22 and plans to sample the well in accordance with the 2012 Sampling Plan.

Drift Aquifer

25. The City plans to sample W422 per 2012 Sampling Plan.

26. The original pump tests were reported to the Agencies at the time (late 1980s for well W420 and approximately 1995 for well W439). The response of wells W9 and W425 to changes in nearby pumping stresses has been presented at prior meetings but not summarized in a formal report. The City is heartened that the Agencies are now curious about the water level records the City has collected over the years. To the extent the Agencies are ready to entertain a discussion of pumping cessation, the City looks forward to a full discussion of these data in report format. To begin with, however, the City requests a meeting to kick off the cessation discussion with mutually agreed goals, procedures, and technical content.

27. On several occasions the City has suggested that a pair of Drift and Platteville Aquifer wells downgradient from wells W420 and W421 would aid in the evaluation of those wells – particularly from the perspective of documenting any changes if the wells cease pumping. The City agrees that the existing monitoring network is not perfect for all purposes, but stands by the conclusions presented in the report. Part of the City's basis for the conclusions is drawn from the literature descriptions of natural attenuation at other PAH sites, and the patterns of individual PAH compounds such as naphthalene which is present at high concentrations in the source area where biodegradation is an active process, and is absent downgradient where acenaphthene begins to dominate in the PAH composition of the groundwater due to its relative mobility and other attenuation properties.

Data Quality Assessment

28. The City is of the opinion that the annual sampling plans for the Reilly Site (and corresponding Quality Assurance Project Plans) can change year to year based on agreement of the parties, without petitioning the court to "change the CD-RAP". This has already been done on numerous occasions, as the Agencies have pointed out some differences between what they see in the City's reports and what is contained in the CD-RAP. One of the changes that the City would like to implement is testing for priority pollutant PAH compounds, instead of the list of 31 PAH currently being analyzed. The City suggests that limiting the list of parameters to priority pollutant PAH for most analyses would improve data quality which would be beneficial to the Agencies as well as the City.

The City has agonized over the fact that only one laboratory has been able to provide the low part per trillion testing needed in the past. Every year the question of finding a new lab, perhaps with a new method, presents itself. The City requests any assistance from the Agencies to assist in finding a new lab to perform the PAH analysis. To the extent that the Agencies are willing to entertain changes in the analytical program that could contribute to site closure and/or future groundwater monitoring efficiencies, the City would appreciate an ongoing dialog to that effect. The City is of the opinion that the lessons learned about the distribution and composition of PAH in the drinking water aquifers can shape a future monitoring program using fewer individual PAH compounds. Obviously it is the Other PAH and not the carcinogenic PAH that provide the biggest challenge in this regard. The City would like to work with the Agencies to meet that challenge.

In summary, the City would like to meet with the Agencies to re-evaluate our groundwater monitoring program to ensure that the right wells are being monitored, the right analytical techniques are being used, and the right data are being collected to move the site towards closure. Please contact the undersigned to arrange a meeting at your earliest convenience.

Sincerely,

William M. Gregg
City of St. Louis Park Project Leader

Michael P. Rardin
City of St. Louis Park Director of Public Works